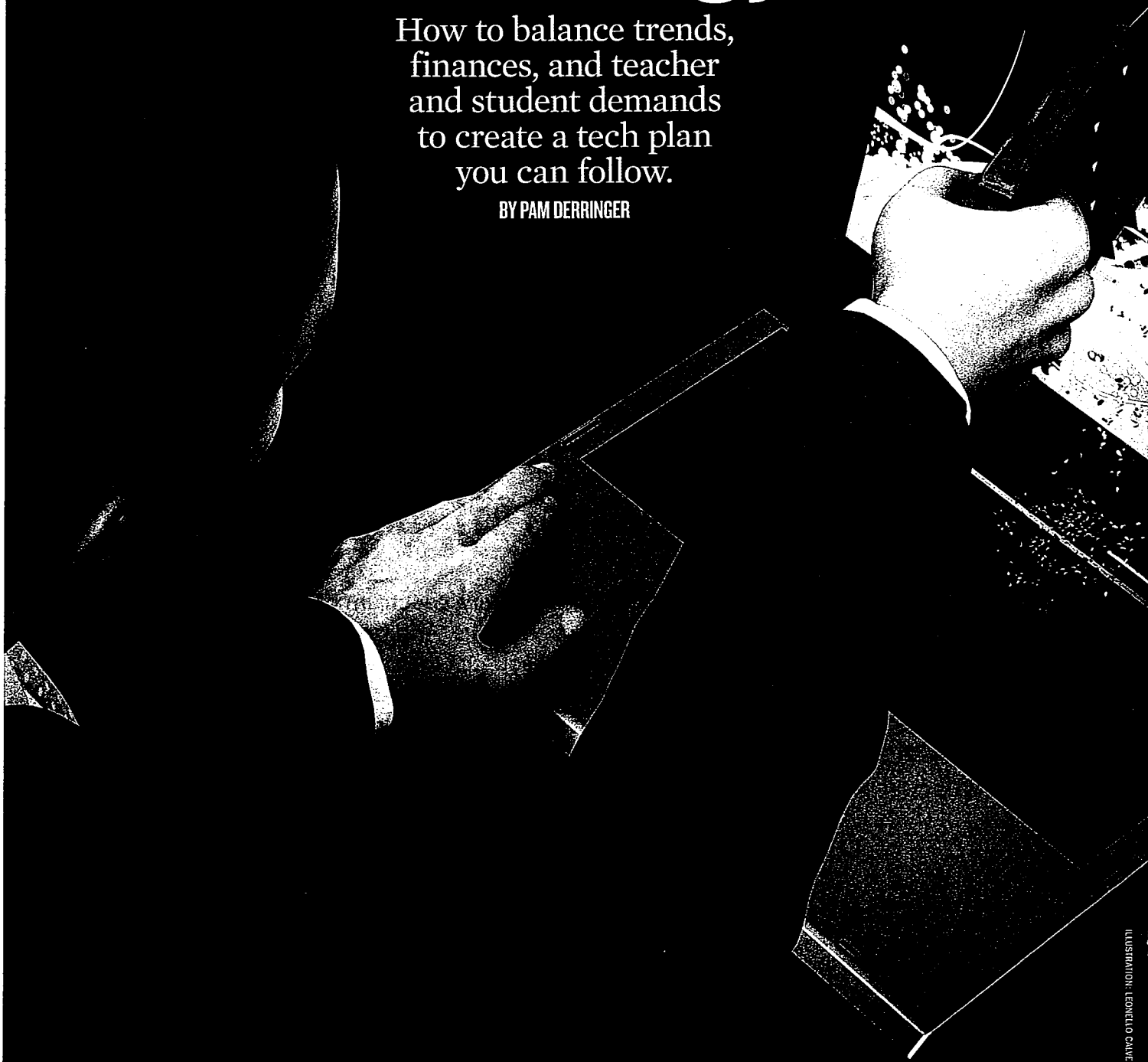


Last Technology

How to balance trends,
finances, and teacher
and student demands
to create a tech plan
you can follow.

BY PAM DERRINGER



PITY THE POOR K-12 technology director. His or her biggest job—setting a long-term district plan for technology purchases—has

suddenly gotten much harder. While projecting the future has always been difficult, consider the recent factors that are making this task much more like walking a tightrope. Technology upgrades not only seem to come faster, but the lag between new devices and school implementation is much shorter. iPads and bring-your-own-device policies are spreading rapidly through districts. And teachers and administrators are demanding a voice in technology decisions, with students not far behind. Throw in the uncertainty of state and local funding and it's clear what a balancing act it is.

New devices, additional user demands, and funding uncertainty make you wonder whether it even makes sense to try to create a long-term tech plan anymore. Can tech departments still guide the adoption process, and do five-year plans still serve a useful purpose?

Yes, to both questions, tech directors say. Vision, purpose, and a road map are, in fact, needed more than ever.

In Maine, for example, a commitment to equity is the underpinning of its statewide one-to-one laptop program for all middle school and high school students, according to Jeff Mao, the state's learning technology policy director. Maine's four-year, \$240-per-year MacBook leases cost half as much as a \$40 monthly cell-phone plan and offer much more computing power than a smartphone or an iPad, he says. And many students can't afford a cell-phone data plan, he adds.

"For us, the priority is student-centered education with a personal device at the point of learning," Mao says. "The overwhelming majority of teachers say the laptops are helping kids and encouraging them to become invested in their own learning."

A four-year technology plan works well for Maine because teachers can't adapt to new devices every year, Mao says. In reality, it takes time to learn a new device and incorporate it efficiently

into teaching practices, he explains.

"You need to have direction, and you can't do it without a plan," concurs Rich Kaestner, project director with the Consortium of School Networking. "The five-year IT plan should dovetail with what the schools are trying to accomplish."

Seek Opinions for the Best Plan

THE KEY TO A WORKABLE PLAN IS flexibility, particularly in the last year of a long-term plan and especially when buying devices (as opposed to infrastructure upgrades, which are less subject to change). Mao says the best technology plans occur when IT staffs let teachers, administrators, and students decide what they need to reach their learning goals, and then propose options they might not have considered, while helping them find the money. "IT staffs can only write plans on what they know, technologically, today," Mao says. "But if they know the new educational standards, they can encourage teachers to dig into the educational challenges and get more creative in their solutions."

Jerry Crisci, director of technology with the affluent Scarsdale Public Schools in New York, says it's also critical to align technology plans with the goals of the district. And that's easier for Crisci to achieve because he is a member of the district's executive team.

"I don't need a room full of desktops if a kid can do research with the device in his pocket."

—Michael Gras, White Oak (Texas) ISD

"The cabinet seat is important because the technology director is a partner in decision making and the strategic plan," Crisci says. "The tech director needs to hear what people are saying and help drive the technology conversation."

But even the best tech plans can be torpedoed by events outside their control. Crisci, for example, says the recently

TECH PLANNING

enacted two percent state property tax cap is a "game changer" in New York and could cause voters to question the timing of a pilot one-to-one laptop initiative planned for the middle school this fall.

Another potential bombshell is Verizon's recent termination of flat-rate data plans and whether that will adversely affect student use of mobile devices for school research and collaboration.

Is BYOD a Game Changer?

DESPITE THE PREVALENCE OF CELL phones and iPads, most districts don't yet officially authorize the use of personal devices in school for a number of reasons, including the difficulty of managing and supporting them, concerns about opening up access to the school network, and worries about liability.

"Instead of being strategic about personal mobile devices and managing them, we just don't allow them," says a disgruntled urban school tech director, who disagrees with the decision and chose to remain anonymous.

Scarsdale, in contrast, takes a middle road, permitting high school students to bring in mobile devices and log on as "guests," which gives them access to the Internet but not to the school network, Crisci says. The Round Rock (Texas) Independent School District has a similar "guest" access policy, according to Ed Zaiontz, the executive director of information services.

White Oak Independent School District, also in Texas, will begin allowing students to bring mobile devices to school this fall at the discretion of the teacher, according to Michael Gras, chief of technology. One fifth-grade teacher who allowed personal devices the previous two years in violation of school policy warned students that the privilege would be halted if there was a single problem. There never was.

"Who am I as tech director to deprive a student of connectivity?" Gras asks. "My job is to foster interaction."

Horizon Report's Predictions

IN FACT, THE 2011 HORIZON REPORT BY the New Media Consortium and the Educause Learning Initiative identified mobile computing, especially smartphones and tablets, as a near-term emerging technology in the next 12 months. Ditto for cloud computing.

During the next two or three years, game-based learning and free online open content will become more commonplace, the report predicts. Learning

analytics and personal learning environments are three to five years away, the report notes.

Beyond the mobile devices, school technology departments planning for the future face potential changes with budget implications in almost every aspect of their operation, including networking, desktops and servers, and the fledgling trend toward digital texts and free, open digital content (potentially affecting IT, since at some schools text and technology budgets are combined). Collectively, these tech options will affect not just the cost and efficiency of IT operations but the resources available to students and the ability of teachers to belong to professional networks.

For example, the advent of Google Apps, which offers students anytime access, collaboration, and permanent storage for their work, is a "really big deal," says Crisci, who is also a Google-certified teacher. The recently launched Microsoft Live has a similar approach.

But if most of the computing is in the cloud, do you need classrooms of fully functioning desktops? White Oak's Gras doesn't think so.

"I don't think I need computers anymore if a kid can do research with the device in his pocket," says the district's chief of technology. "Certainly, we need a lot less."

The cloud also raises questions about the need for servers, which require lots of staff hand-holding and guzzle gobs of energy. The annual operating cost of a server is about 25 percent of the purchase price—every year. And energy is among the top budget items for most districts.

"It's crazy to build up [server] infrastructure in-house," says the disgruntled urban IT director. "The cloud happens so much faster, and the district would get more storage space."

White Oak ISD has made the switch. With all but two of its 17 servers in the closet, the dis-

trict is running everything in the cloud, including student information systems. Only its DNS and DHCP servers are in daily operation.

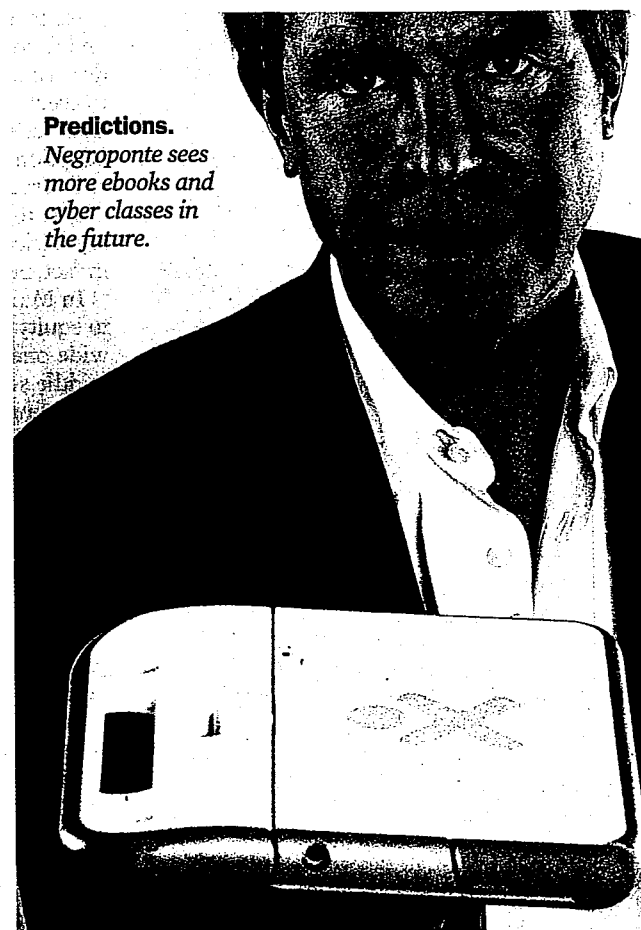
Thanks to the cloud and lots of open-source applications, White Oak is saving time and money, annually returning up to 20 percent of its budget to the district, Gras says. Software and Web hosting cost just upward of \$10,000 a year, he adds. "We have so much going on for so little cost, it's unbelievable."

Round Rock Pioneers Networking

THEN THERE'S THE NETWORK. ROUND Rock, Texas, is way ahead of the curve, equipping all new high schools with IP-TV, broadcasting 28 TV channels over its data network without coaxial cables, TV monitors, or costly LCD screens, according to tech director Zaiontz.

All a teacher needs is a computer, an AMX touch-control panel, a ceiling-

NEGROPONTE ON FUTURE SCHOOLS:



Predictions.

Negroponte sees more ebooks and cyber classes in the future.

mounted projector, and a conventional AV screen to watch live events, school presentations, or programming saved on the server, Zaiontz explains. The system, which can be remotely managed via AMX Schoolview software, has one drawback: It's too expensive to retrofit in existing schools that already have cable.

As for network challenges, some districts have opted to keep tight, across-the-board access controls for teachers and students with blanket filters that prevent teachers from downloading class materials from the Internet. Some IT departments want to lock out bandwidth-hogging video and audio files, forcing teachers to wait several weeks for authorization and, in the process, missing the teachable moment, according to the urban IT director.

There are also districts that deny teachers storage on the network or access to cloud storage. The restrictions can create

a digital divide, keeping teachers from forming professional learning networks and sometimes even depriving them of what they need to do their jobs.

The irony is the school network no longer has an iron lock on what teachers can access or store because applications like clear.com and vendors like Sprint offer individual wireless access plans, he says. "The schools have lost that battle [for control]," Zaiontz declares.

As for open education resources, Maine and Maryland are pioneering work to promote the use of free, digital materials. Maine put a top math teacher on sabbatical for a year so that he could create digital materials to be assembled into a book; the state will fund professional development for the use of these materials in the coming year, says Mao, Maine's tech policy director.

"Broadband and mobile devices are converging, leading to the creation of

more digital content," he adds. "Maine is trying to promote the transition from print to digital media. And we're going to get there first."

Maryland is just starting to create a national repository of open digital resources, focusing first on ways to embed research skills across the curriculum, according to Jayne Moore, state director of instructional technology and school library media.

And in Texas, White Oak ISD also hopes to maximize free open content with customizable, interactive texts from CK12.org. The CK-12 materials would save the district textbook money, but first White Oak needs funding from the combined text and technology budget for new equipment, says to White Oak technology specialist Scott Floyd.

"CK-12 is the future," Floyd says. "They are the leaders and will have many statewide initiatives in the next few years." ■

Laptops Make Children Thirst for Learning

To create a five-year technology plan today, a CTO needs to imagine what the classrooms of 2016 will look like. How will they be different?

MIT professor Nicholas Negroponte, cofounder of MIT's Media Lab and chairman and founder of One Laptop per Child, predicts the future classroom itself will not matter much, at least in the traditional sense of a teacher at the head of the room.

"More and more classrooms will evolve into labs; home-rooms may be situated more in cyberspace than real space," he believes. "Books certainly will not exist as paper artifacts; libraries will exist only as repositories for books that have not been digitized."

The key difference is that children will be different five years from now, he says. First graders will start school with three years of iPhone experience and probably one or two years with the iPad. And they will never have experienced boredom, Negroponte predicts.

"That's what CIOs (if there are any) should grasp," he warns.

Teaching "is important but overrated," he says (although many would disagree). "We all learned in the first five years of our lives by interacting with our environments, outside the confines of teaching. Suddenly at age six, we are told to stop learning that way and to learn more by being told."

The best way currently available to help children learn and become passionate about learning is to give them access to laptops 24/7, he says. Schools in countries whose students were given laptops under Negroponte's program found truancy dropped from 30 percent to nearly zero, discipline problems vanished, and parental involvement soared, he says.

"Laptops restore the student-centered learning model and turn the student into a teacher," he says. "The best way to learn something is to teach it."

Even with more laptops, the U.S. system remains deeply flawed, he adds. The system has three major structural problems: too many separate school districts, segregation by age, and extreme use of test scores.



Above. Children with Negroponte's low-cost laptops.
Below. Technology can enhance social learning.

